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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/829,625 | 04/22/2004 | John William Alcorn | ROC920030352US1 | 7294 |
| 7590 | 05/04/2007 | | EXAMINER | |
| Robert R. Williams | | | CHEN, QING | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/829,625 | ALCORN ET AL. | |

| | | |
|-----------------|-----------------|--|
| Examiner | Art Unit | |
| Qing Chen | 2191 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 22 April 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 April 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial Office action based on the application filed on April 22, 2004.
2. **Claims 1-20** are pending.

Drawings

3. The drawings are objected to because “J3EE” should read -- J2EE -- in Figure 3, Element 320. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the Examiner, the Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The use of trademarks, such as ENTERPRISE JAVABEANS, EJB, J2EE, WEBSPHERE, DB2, and ORACLE9i, has been noted in this application. Trademarks should be capitalized wherever they appear (capitalize each letter OR accompany each trademark with an appropriate designation symbol, *e.g.*, ™ or ®) and be accompanied by the generic terminology (use trademarks as adjectives modifying a descriptive noun, *e.g.*, “the JAVA programming language”).

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. **Claims 6-15** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 6-10 contain “means-plus-function” limitations and appear to be apparatus. However, it is noted that the specification does not disclose any specific corresponding structure or equivalents thereof. The recited means appear to lack the necessary physical components (hardware) to constitute a machine or manufacture under § 101. Therefore, these claim

limitations can be reasonably interpreted as computer program modules—software *per se*. The claims are directed to apparatus of functional descriptive material *per se*, and hence non-statutory.

The claims constitute computer programs representing computer listings *per se*. Such descriptions or expressions of the programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element, which defines structural and functional interrelationships between the computer program and the rest of the computer, that permits the computer program’s functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 11-15 recite signal-bearing medium as a claimed element. However, it is noted that the specification describes such signal-bearing medium as embracing communication medium, such as through a computer or a telephone network, including wireless communications (*see Page 12: 6-8*). Consequently, the signal-bearing medium can be reasonably interpreted as carrying electrical signals.

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism *per se*, and as such are non-statutory natural phenomena. *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14

(1853). Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1-19** are rejected under 35 U.S.C. 102(e) as being anticipated by Hamilton (US 6,889,227).

As per **Claim 1**, Hamilton discloses:

- receiving a specification of a method in a container-managed persistence bean and a procedure in a backend data store (*see Column 4: 6-10, “The application server receives the database protocol commands or queries from the client computer system and a database bridge converts the database protocol commands to general computer programming language commands of applications running on the application server.” and 33-46, “... when the client computer system attempts to access a database field, the request from the client is executed*

against the created map to determine the corresponding EJB command (e.g. method) for accessing the database field.”); and

- accessing the procedure via a backend-specific protocol (*see Column 4: 51-56, “The client computer systems 14 communicate in a database access protocol, such as SQL, to the application server 18 ... ”.*)

As per **Claim 2**, the rejection of **Claim 1** is incorporated; and Hamilton further discloses:

- generating code in a helper class associated with the container-managed persistence bean (*see Column 6: 14-25, “The database bridge 120 may be defined as a “bridge” class to implement its database protocol command conversion functions. ”*).

As per **Claim 3**, the rejection of **Claim 2** is incorporated; and Hamilton further discloses:

- wherein the code in the helper class performs the accessing (*see Column 6: 14-25, “After the SQL protocol commands are mapped to EJB objects 130, the objects are executed and the EJB objects 130 develop and send queries to the database 110 server 20. ”*).

As per **Claim 4**, the rejection of **Claim 1** is incorporated; and Hamilton further discloses:

- receiving a specification of input and output records for the procedure (*see Column 6: 36-42, “... the properties and methods of the EJB objects that are used to access the database are determined to create the database bridge 120. ”*); and

- mapping the input and output records between the method and the procedure (*see Column 6: 36-42, "... a map is created to correlate queries or commands from the client application to EJB objects for executing those commands. "*).

As per **Claim 5**, the rejection of **Claim 1** is incorporated; and Hamilton further discloses:

- determining a connector based on a connection factory type (*see Column 6: 1-9, "This Visual Basic application may use Microsoft database access technology ADO (ActiveX Data Objects) API 106, which is in turn built upon the Microsoft OLE-DB interface 108. "*); and
- accessing the procedure via the connector (*see Column 6: 1-9, "OLE-DB is a Microsoft COM API for database access. The Microsoft OLE-DB interface uses database drivers to talk to target databases. "*).

As per **Claim 6**, Hamilton discloses:

- means for receiving a specification of a method in a container-managed persistence bean and a procedure in a backend data store (*see Column 4: 6-10, "The application server receives the database protocol commands or queries from the client computer system and a database bridge converts the database protocol commands to general computer programming language commands of applications running on the application server. " and 33-46, "... when the client computer system attempts to access a database field, the request from the client is executed against the created map to determine the corresponding EJB command (e.g. method for accessing the database field. "*);

- means for generating code in a helper class associated with the container-managed persistence bean (*see Column 6: 14-25, "The database bridge 120 may be defined as a "bridge" class to implement its database protocol command conversion functions."*); and
- means for accessing the procedure via a backend-specific protocol (*see Column 4: 51-56, "The client computer systems 14 communicate in a database access protocol, such as SQL, to the application server 18 ... "*).

As per **Claim 7**, the rejection of **Claim 6** is incorporated; and Hamilton further discloses:

- wherein the code in the helper class performs the means for accessing (*see Column 6: 14-25, "After the SQL protocol commands are mapped to EJB objects 130, the objects are executed and the EJB objects 130 develop and send queries to the database 110 server 20. "*).

As per **Claim 8**, the rejection of **Claim 6** is incorporated; and Hamilton further discloses:

- means for receiving a specification of input and output records for the procedure (*see Column 6: 36-42, "... the properties and methods of the EJB objects that are used to access the database are determined to create the database bridge 120. "*); and
- means for mapping the input and output records between the method and the procedure (*see Column 6: 36-42, "... a map is created to correlate queries or commands from the client application to EJB objects for executing those commands. "*).

As per **Claim 9**, the rejection of **Claim 6** is incorporated; and Hamilton further discloses:

- means for determining a connector based on a connection factory type (*see Column 6: 1-9, "This Visual Basic application may use Microsoft database access technology ADO (ActiveX Data Objects) API 106, which is in turn built upon the Microsoft OLE-DB interface 108.*"); and
- means for accessing the procedure via the connector (*see Column 6: 1-9, "OLE-DB is a Microsoft COM API for database access. The Microsoft OLE-DB interface uses database drivers to talk to target databases.*").

As per **Claim 10**, the rejection of **Claim 6** is incorporated; and Hamilton further discloses:

- means for calling an evaluator class and passing results of the procedure, wherein the evaluator class evaluates the results (*see Column 8: 10-15, "... the object evaluator 160 exposes methods of EJBs and, in this case, the object evaluator 160 is executed with respect to the single access EJB to expose the separate database access methods of the single access EJB object. The exposed methods are used to produce or update the database bridge map 128.*").

Claims 11-15 are signal-bearing medium claims corresponding to the apparatus claims above (Claims 6-10) and, therefore, are rejected for the same reasons set forth in the rejections of Claims 6-10.

As per **Claim 16**, Hamilton discloses:

- a processor (see Column 5: 35-40, “... the present invention are carried out through the use of a central processing unit (CPU) in conjunction with application programs or modules.”); and
- a storage device encoded with instructions, wherein the instructions when executed on the processor (see Column 5: 35-40, “Computer programs and modules used to implement the various steps of the present invention are generally located in a memory unit ... ”) comprise:
 - receiving a specification of a method in a container-managed persistence bean and a procedure in a backend data store (see Column 4: 6-10, “The application server receives the database protocol commands or queries from the client computer system and a database bridge converts the database protocol commands to general computer programming language commands of applications running on the application server.” and 33-46, “... when the client computer system attempts to access a database field, the request from the client is executed against the created map to determine the corresponding EJB command (e.g. method) for accessing the database field.”),
 - generating code in a helper class associated with the container-managed persistence bean (see Column 6: 14-25, “The database bridge 120 may be defined as a “bridge” class to implement its database protocol command conversion functions.”),
 - determining a connector based on a connection factory type (see Column 6: 1-9, “This Visual Basic application may use Microsoft database access technology ADO (ActiveX Data Objects) API 106, which is in turn built upon the Microsoft OLE-DB interface 108.”), and
 - accessing the procedure via a backend-specific protocol and the connector, wherein the code in the helper class performs the accessing (see Column 4: 51-56, “The client

computer systems 14 communicate in a database access protocol, such as SQL, to the application server 18 ... ”; Column 6: 1-9, “OLE-DB is a Microsoft COM API for database access. The Microsoft OLE-DB interface uses database drivers to talk to target databases. ”).

As per **Claim 17**, the rejection of **Claim 16** is incorporated; and Hamilton further discloses:

- receiving a specification of input and output records for the procedure (*see Column 6: 36-42, “... the properties and methods of the EJB objects that are used to access the database are determined to create the database bridge 120. ”*); and
- mapping the input and output records between the method and the procedure (*see Column 6: 36-42, “... a map is created to correlate queries or commands from the client application to EJB objects for executing those commands. ”*).

As per **Claim 18**, the rejection of **Claim 16** is incorporated; and Hamilton further discloses:

- calling an evaluator class and passing results of the procedure, wherein the evaluator class evaluates the results (*see Column 8: 10-15, “... the object evaluator 160 exposes methods of EJBs and, in this case, the object evaluator 160 is executed with respect to the single access EJB to expose the separate database access methods of the single access EJB object. The exposed methods are used to produce or update the database bridge map 128. ”*).

As per **Claim 19**, the rejection of **Claim 16** is incorporated; and Hamilton further discloses:

- wherein the backend data store comprises a relational database (*see Column 6: 27-31, "The data of an SQL database is relational. "*).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton (US 6,889,227) in view of Apte et al. (US 6,269,373).

As per **Claim 20**, the rejection of **Claim 16** is incorporated; however, Hamilton does not disclose:

- wherein the backend data store comprises a non-relational database.

Apte et al. disclose:

- wherein the backend data store comprises a non-relational database (*see Column 6: 54-57, "The above mentioned methods could be written to access other backend systems (i.e. CICS, IMS, MQ, SAP, etc.) and should not be restricted to just JDBC or database access. "*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Apte et al. into the teaching of Hamilton to include wherein the backend data store comprises a non-relational database. The modification would be obvious because one of ordinary skill in the art would be motivated to utilize and access non-relational databases (*see Apté et al.* – Column 6: 54-57).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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QC / QC
April 25, 2007

WZ
WEI ZHEN
SUPERVISORY PATENT EXAMINER